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6/16/76

Type II Progress Report

Evaluation of Landsat-2 Data
for
Selected Hydrologic Applications

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(E78-10373) EVALUATION OF LANDSAT-2 DATA
FOR SELECTED HYDROLOGIC APPLICATIONS
PROGRESS REPORT (NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION) 3 P HC \$3.50

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Landsat Investigation No. 23170

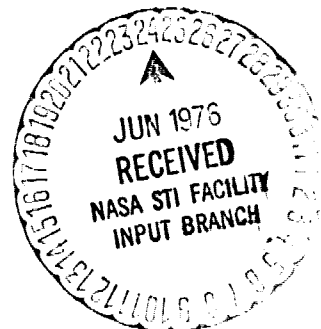
Contract No. NAS⁵35991A

23170

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A. Problems

None

B. Accomplishments

1. Complete basic data set on March 1975 Phoenix test site soil survey received from Texas A&M.

2. Landsat MSS 4 and MSS 6 digital data were compared with averaged soil moisture values for bare and vegetated fields from the Phoenix test site. Regression analyses produced a correlation coefficient of $r^2 = 0.71$ ($r = .84$) for a power fit of satellite MSS 4 radiance values vs. averaged soil moisture for bare fields, and an $r^2 = .69$ ($r = .83$) for a similar fit of MSS 6 values. For vegetated fields, MSS 4 values remained almost constant, not affected by vegetation type or soil moisture. Using MSS 6 data, alfalfa fields increased in brightness as soil moisture increased, providing an $r^2 = .88$ ($r = .94$) for a parabolic fit. Wheat field MSS 6 brightness varied little with moisture changes.

3. Aircraft M²S tapes received from NASA for October 1975 flight over Luverne.

4. Snow mapping of American River basin for February 20, 1976 and March 9, 1976 using Landsat imagery completed. Results and comparisons are listed below:

<u>% Snow Cover</u>			
<u>Date</u>	<u>MSS 5</u>	<u>MSS 7</u>	<u>SMS-2</u>
Feb. 20, 1976	54%	51%	55%
Mar. 9, 1976	46%	41%	46%

C. Significant Results

None

D. Publications

Received from Texas A&M

Blanchard, Bruce J., 1975, Ground Truth Report 1975 Phoenix Microwave Experiment, Remote Sensing Center, College Station, Texas

Received from EG&G

Feimster, E.L. and Fritzsche, A.E., 1975, Soil Moisture Survey
Experiment at Luverne, Minnesota, EG&G, Las Vegas, Nevada

E. Recommendations

None

F. Funds Expended

\$7.6K remains of funds available for investigation.

G. Data Use

CCT tapes used in obtaining MSS 4 and MSS 7 radiance values for Phoenix test site in March, 1975. 70 mm positive transparencies used in mapping American River Basin snow cover for February 20, 1976 and March 9, 1976.

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